



EVACUATED TUBE SOLAR COLLECTORS

Raine or Shine's SFB Panel is absolutely the best choice for solar water heating in the UK. The technology and construction of the SFB range is designed to work efficiently in the wide range of climatic conditions which we experience in Northern Europe, squeezing the maximum amount of solar energy from sunny and overcast conditions. All aspects of the construction ensure resistance to freezing, sunshine, rain, wind and dry periods typical of our cycling seasons.



Our Evacuated Tubes have a number of significant features that put them above your average solar tube!

- ☀ We use a thicker grade of copper on our heat pipes for maximum integrity
- ☀ The pipes are welded with an expensive silver weld so as to be resistant to thermal shock and to prevent leaks between joints
- ☀ Unlike some brands the heat pipe runs the full length of the tube making them as efficient as possible
- ☀ The heat pipe is tapered at the end, which allows the heat to consolidate and transfer efficiently in the manifold. This also helps prevent splits if the tube freezes
- ☀ Inside the heat pipe is a patented liquid which increases heat transfer and gives the tube a much longer life expectancy
- ☀ Two layers of glass with a vacuum between means heat can enter but cannot escape
- ☀ During heat tempering the glass tubes are inspected under a polarised lens in ultraviolet light. Any stresses are revealed and then heated to remove any weak spots

How many tubes or panels will I need?

The number of panels you will need is largely dependent on the size of your hot water tank and the orientation of your roof. A south facing roof is best but not essential. As a rough guide, to provide around 50% of your year's hot water you need 8 x 47mm tube, or 5 x 58mm tubes per 50 litres of water being heated.

For every 10 degrees off due south, add 12% to the number of tubes.

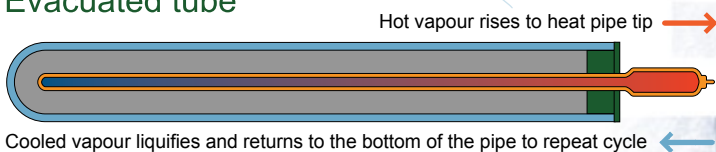
At 70 degrees off due south, an east / west installation will be needed. Double the number of panels shown above and put half on the east side to catch the sun in the morning, and half on the west to catch the sun in the afternoon.

The table below details the sizes and specifications of each panel.

Item No.	Specifications				Effective Collector Area (m ²)	Panel Area (m ²)	Dimensions			
	No. of solar tubes	Diameter of solar tubes	Length (m)	Copper Heat Pipe			Length (mm)	Width (mm)	Height (mm)	Weight (kg)
SFB104715	10	Ø 47mm	1.5	Yes	0.83	1.13	1760	760	130	27
SFB154715	15	Ø 47mm	1.5	Yes	1.24	1.69	1760	1085	130	36
SFB204715	20	Ø 47mm	1.5	Yes	1.66	2.25	1760	1570	130	49
SFB304715	30	Ø 47mm	1.5	Yes	2.49	3.38	1760	2170	130	72
SFB155815	15	Ø 58mm	1.8	Yes	1.89	2.7	1900	1203	140	51
SFB205815	20	Ø 58mm	1.8	Yes	2.52	3.6	1900	1660	140	69
SFB305815	30	Ø 58mm	1.8	Yes	3.78	5.4	1900	2406	140	102

This range of sizes means that any household's hot water requirements can be catered for with solar.

Evacuated tube



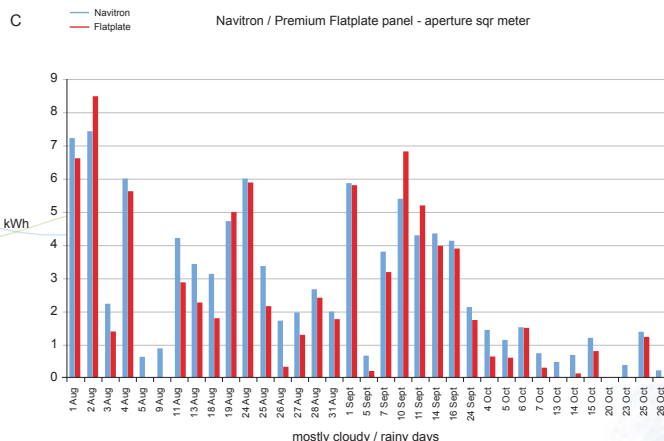
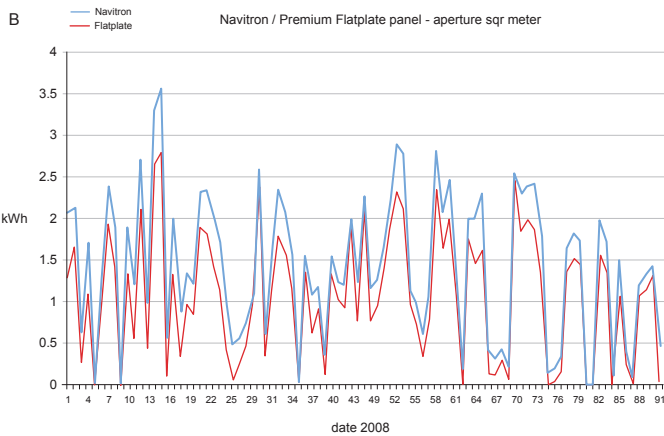
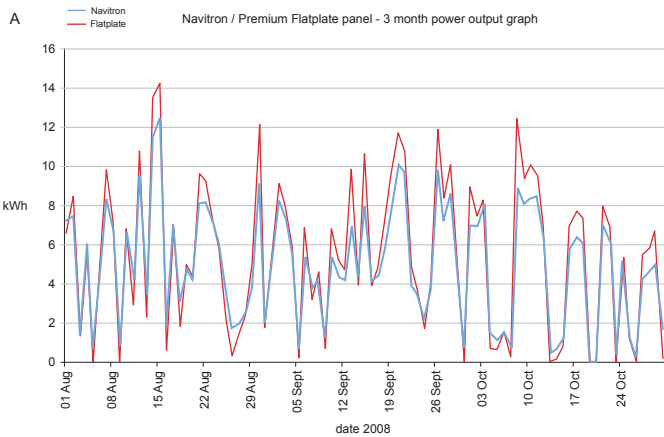
Do not compare the Navitron SFB panels from Raine or Shine with other panels on the market. These products are designed and manufactured from start to finish with quality, performance and longevity as the sole driving force.





EVACUATED SOLAR TUBE COLLECTOR VS. PREMIUM FLAT PLATE PANEL

The graph below demonstrates the output in kWh hours of 2 Premium Flatplate Solar Panels (acclaimed leading brand) and 2 Navitron 20 Evacuated Tube Solar Panels over a three month period in 2008 (August, September and October).



The aperture area of a Navitron panel measures only 1.74m², whereas the premium flatplate measures 2.52m²

Whilst you get 31% more panel with the flatplate, it will cost you 54% more than a Navitron panel to buy... and as the results in the top graph show, you won't get anywhere near a 31% higher output.

Graph B demonstrates the kWh output of one square meter of a Navitron evacuated tube panel against one square meter of the premium flatplate. It clearly shows that Navitron outperforms in all conditions.

The variety of weather conditions is the key to the success of evacuated tubes in the UK climate. Graph C looks at the 35 days during the August - October 2008 period deemed to have been wet or overcast.

As the results show, Navitron outperformed the Premium Flatplate on 30 of those 35 days.

Other interesting points:

The aperture area of a Navitron panel measures only 1.74m², where as the premium flatplate measures 2.52m². Whilst you get 31% more panel with the flatplate, it will cost you 54% more than a Navitron panel to buy, and as the results in the top graph show, you won't get anywhere near a 31% higher output.

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Graph C looks at the 35 days during the August - October 2008 period deemed to have been wet or overcast.

As the results show, Navitron out-performed the Premium Flatplate on 30 of those 35 days.

Flatplate panels are a perfectly acceptable (if priced affordably) type of panel in hot and sunny climates. In the UK, however, they are simply not very efficient in cloudy or wet conditions, which sadly makes up a significant proportion of our climate.

The founding Raine or Shine ethos has always been to remove the myths surrounding solar panel performance and in doing so to expose those who charge far too much money for technologies based on false promises. We want to give clear and concise advice on the workings of all solar water heating equipment and price our products in an appropriate and affordable manner.

